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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
APPLICATION FOR UNITED STATES LETTERS PATENT**

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TITLE: ***SEGMENTED CONCRETE SCREED***

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SEGMENTED CONCRETE SCREED

CROSS-REFERENCE TO RELATED APPLICATIONS

None

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR

5 DEVELOPMENT

Not Applicable.

BACKGROUND OF THE INVENTION

This invention relates to concrete casting machines which cast concrete 10 panels. Previously, hollow core concrete panels have been formed by many methods, including single and multiple pass casting using moving beds and with stationary beds. The hollow cores are made by using slipform extruders that leave core material in place over which concrete is formed. Once cured, the panels are cut to length and lifted and tilted to remove the core material which may be reused.

15 Some hollow core panels have been made with an insulating layer across the entire surface, as shown in U.S. Patent 4,628,653, the disclosure of which is incorporated herein by reference. Basically, a hollow core panel is cast and interlocking sheets of insulation are laid down before a final pour of concrete. This uniform layer of insulation increases the R-value of the finished wall panels and floor plank.

20 Recently, the assignee of this invention has developed a machine and process that uses foam billets to provide insulation and to eliminate the need for using slipform extruders and core material. The invention is described in published U.S. patent application US20030115822A1 which was published on June 26, 2003, the disclosure of which is incorporated herein by reference. A further benefit of this invention is that it 25 allows casting concrete panels with openings therethrough, such as for windows. A pass through opening during casting means that current screed apparatus of casting machines will not function properly.

The art described in this section is not intended to constitute an admission 30 that any patent, publication or other information referred to herein is "prior art" with respect to this invention, unless specifically designated as such. In addition, this section should not be construed to mean that a search has been made or that no other pertinent

information as defined in 37 C.F.R. § 1.56(a) exists.

BRIEF SUMMARY OF THE INVENTION

The invention provides a modified concrete screed for machines for
5 casting concrete panels which is adjustable so the screeding operation may bypass zones
on the bed when desired.

The inventive segmented screed of the invention basically modifies any
standard concrete casting apparatus as shown in U.S. Patents 3,217,375; 3,523,343;
4,004,874; 4,289,293 and 4,457,682, the disclosures of which are incorporated herein by
10 reference. Such casting machines have a casting bed that is either stationary or is driven
along rails. The casting bed has a bottom pallet and side forms. Normally, a screed is
positioned above the cast concrete between the side forms such that it may screed the
poured top surface of the concrete. In this invention, the screed is modified such that it
includes a plurality of segments, each of which may be raised or lowered independently
15 of the others such that screeding may be bypassed at any desired location.

BRIEF DESCRIPTION OF THE DRAWINGS

A detailed description of the invention is hereafter described with specific
20 reference being made to the drawings in which:

FIG. 1 is a perspective view of the segmented screed of the invention;

FIG. 2 is a side elevational view of the segmented screed showing a
segment lowered against concrete; and

FIG. 3 is a front elevational view of the screed with segments down.

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DETAILED DESCRIPTION OF THE INVENTION

Casting machines which employ the segmented screed have a casting bed
10 that is either stationary or is driven along rails. The casting bed 10 has a bottom pallet
14 and side forms 16, 18. The concrete panel 20 being formed is shown in Fig. 1 and has
30 an upper surface 22 which requires screeding. The concrete panel 20 shown includes one
or more defined openings 28 and would typically include a plurality of foam billets as

shown and described in published U.S. patent application US20030115822A1. That method allows concrete panels to be cast without the need to tilt the finished panels to remove core material from longitudinal voids. This allows the use of forms 26 which define a pass through opening 28. Unfortunately, the top of the forms 26 will interfere 5 with prior art screeds.

Screed 30 of the invention, like existing screeds, is suspended above the bed 10 and is movable relative to the bed by the bed moving or by its being driven along the length of the bed. Screed 30 includes a framework 32 to which a plurality of screed units 34 are slidably attached via bolts 36 which allow the screed units 34 to be moved 10 vertically relative to the framework 32. The screed units 34 each have a lower screed plate 38 which when combined with the other screed units provides the screeding of the concrete.

Each screed unit includes a hydraulic mechanism 40 including a hydraulic cylinder 42, piston 44 and attachment point 46 to the screed unit 34 as best shown in Fig. 15 2. Conventional controls for the hydraulic mechanisms 40 allow control of the vertical position of each screed unit 34 such that all may descend down to the surface 22 of the concrete to screed the concrete. Alternatively, as shown in Figs. 1 and 3 several of the screed units 34 may be lifted free of the concrete surface 22 just before an obstruction such as the top of the form 26 only to descend thereafter to resume screeding of the 20 entire top surface 22.

The screed 30 has been shown with a system that raises and lowers the individual screed units 34 using hydraulics. Pneumatic or any electronic control as by motors may be utilized instead.

While this invention may be embodied in many different forms, there are 25 shown in the drawings and described in detail herein specific preferred embodiments of the invention. The present disclosure is an exemplification of the principles of the invention and is not intended to limit the invention to the particular embodiments illustrated.

The above disclosure is intended to be illustrative and not exhaustive. 30 This description will suggest many variations and alternatives to one of ordinary skill in this art. All these alternatives and variations are intended to be included within the scope

of the claims where the term "comprising" means "including, but not limited to". Those familiar with the art may recognize other equivalents to the specific embodiments described herein which equivalents are also intended to be encompassed by the claims.

This completes the description of the preferred and alternate embodiments
5 of the invention. Those skilled in the art may recognize other equivalents to the specific embodiment described herein which equivalents are intended to be encompassed by the claims attached hereto.